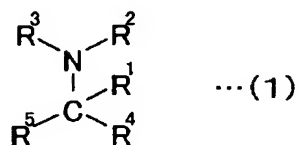


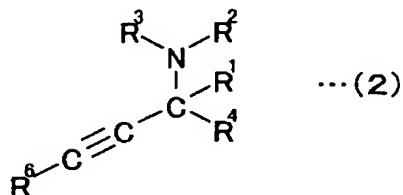
WHAT IS CLAIMED IS:

1. A tertiary amine represented by the following general formula (1):



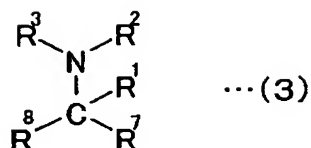
wherein R<sup>1</sup> represents hydrogen atom, alkyl group or aryl group; R<sup>2</sup> and R<sup>3</sup> each represent alkyl group or allyl group; R<sup>4</sup> represents alkyl group, aryl group or allyl group; R<sup>5</sup> represents alkynyl group, aryl group or alkyl group; and wherein when R<sup>5</sup> is aryl or alkyl group, R<sup>1</sup>, R<sup>4</sup> and R<sup>5</sup> are different from one another.

2. The tertiary amine according to claim 1, which is a propargylamine represented by the following general formula (2):



wherein R<sup>1</sup> represents hydrogen atom, alkyl group or aryl group; R<sup>2</sup> and R<sup>3</sup> each represent alkyl group or allyl group; R<sup>4</sup> represents alkyl group, aryl group or allyl group; and R<sup>6</sup> represents alkyl group, aryl group, silyl group, vinyl group or formyl group having 2 or more carbon atoms.

3. A method for producing a tertiary amine represented by the following general formula (3):

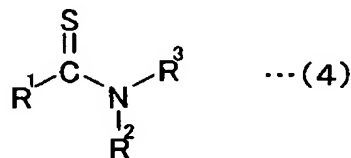


wherein  $\text{R}^1$  represents hydrogen atom, alkyl group or aryl group;  $\text{R}^2$  and  $\text{R}^3$  each represent alkyl group or allyl group;  $\text{R}^7$  represents alkyl group, aryl group, allyl group, vinyl group or alkynyl group; and  $\text{R}^8$  represents alkynyl group, aryl group or alkyl group, the production method comprising the steps of:

adding thioamide represented by general formula (4) and a methylating agent represented by general formula (5) into a solvent,

adding thereto a metal-containing reagent represented by general formula (6), and

adding thereto a Grignard reagent represented by general formula (7),



wherein  $\text{R}^1$  represents hydrogen atom, alkyl group or aryl group, and  $\text{R}^2$  and  $\text{R}^3$  each represent alkyl group or allyl group,



wherein X represents perfluoroalkyl sulfoxyl group,

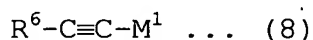


wherein  $\text{R}^8$  represents alkynyl group, aryl group or alkyl group, and  $\text{M}^1$  represents an alkali metal atom, and



wherein  $\text{R}^7$  represents alkyl group, aryl group, allyl group, vinyl group or alkynyl group, and  $\text{M}^2$  represents  $\text{MgCl}$ ,  $\text{MgBr}$  or  $\text{MgI}$ .

4. The production method according to claim 3, wherein said metal-containing reagent is represented by the following general formula (8):



wherein  $R^6$  represents alkyl group, aryl group, silyl group, vinyl group or dialkoxymethyl group having 2 or more carbon atoms, and  $M^1$  represents an alkali metal atom.

5. The production method according to claim 3, wherein said step of adding a Grignard reagent is carried out at a temperature between 40°C and 70°C when said  $R^1$  represents aryl or alkyl group, and the same above step is carried out at a temperature between 0°C and 35°C when said  $R^1$  represents hydrogen atom.

6. The production method according to claim 3, wherein said solvent is diethyl ether or tetrahydrofuran.

7. The production method according to claim 3, wherein said step of adding a metal-containing reagent comprises mixing a solvent containing said thioamide and said methylating agent with a solvent containing said metal-containing reagent.

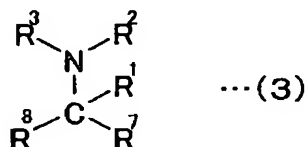
8. The production method according to claim 3, further comprising the steps of:

stirring the solvent for at least 15 minutes after the step of adding said thioamide and said methylating agent thereto,

stirring the solvent for at least 15 minutes after the step of adding said metal-containing reagent, and

stirring the solvent for at least 15 minutes after the step of adding said Grignard reagent thereto.

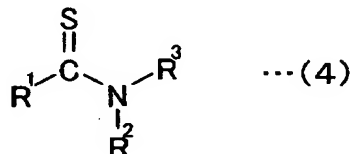
9. A method for producing a tertiary amine represented by the following general formula (3):



wherein  $\text{R}^1$  represents hydrogen atom, alkyl group or aryl group;  $\text{R}^2$  and  $\text{R}^3$  each represent alkyl group or allyl group;  $\text{R}^7$  represents alkyl group, aryl group, allyl group, vinyl group or alkynyl group; and  $\text{R}^8$  represents alkynyl group, aryl group or alkyl group, the method comprising the steps of:

adding a metal-containing reagent represented by general formula (6) into a reaction system including a solvent, thioamide represented by general formula (4), and a methylating agent represented by general formula (5); and then

adding thereto a Grignard reagent represented by general formula (7),



wherein  $\text{R}^1$  represents hydrogen atom, alkyl group or aryl group, and  $\text{R}^2$  and  $\text{R}^3$  each represent alkyl group or allyl group,



wherein X represents perfluoroalkyl sulfoxyl group,



wherein  $\text{R}^8$  represents alkynyl group, aryl group or alkyl group, and  $\text{M}^1$  represents an alkali metal atom, and



wherein  $\text{R}^7$  represents alkyl group, aryl group, allyl group, vinyl group or alkynyl group, and  $\text{M}^2$  represents  $\text{MgCl}$ ,  $\text{MgBr}$  or  $\text{MgI}$ , wherein the equivalent ratio of said thioamide : said methylating agent : said metal-containing reagent : said

Grignard reagent is within the range of 1 : 1 : (1.2 to 1.5) : (1.5 to 10).

10. The production method according to claim 9, wherein said R<sup>1</sup> represents hydrogen atom, and the temperature of said reaction system is between 0°C and 35°C when said Grignard reagent is added.

11. The production method according to claim 9, wherein said R<sup>1</sup> represents aryl or alkyl group, and the temperature of said reaction system is between 40°C and 70°C when said Grignard reagent is added.

12. The production method according to claim 9, wherein said step of adding said metal-containing reagent includes subjecting to an addition reaction a reaction intermediate between said thioamide and said methylating agent, and said metal-containing reagent so as to generate a first addition product, and

said step of adding said Grignard reagent includes subjecting to an addition reaction said first addition product and said Grignard reagent so as to generate a second addition product.